

**Response of
Wisconsin Power and Light Company
to
The Public Service Commission of Wisconsin
Data Request No. 1.03**

Docket Number: 05-CE-137
Date of Request: January 29, 2009
Information Requested By: Ken Detmer
Date Responded: February 16, 2009
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Witness: (If other than Author)

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p. 5 par. 2: What is the anticipated cost of a SCR bypass and has it been considered? Without a reactor bypass how is unit operation affected? For example, will the minimum operating load be higher or lower with or without a bypass? Could a SCR bypass be requested as part of the air permit?

Response:

As noted on page 5 of the Certificate of Authority, a SCR reactor bypass duct is not included in the proposed Edgewater Unit 5 SCR system design. An economizer bypass duct for low temperature control of the SCR process is included in the "bid issue" procurement specification released by WPL to the SCR system suppliers.

The proposed SCR system design for Unit 5 should not impact the operation of the plant. Without the SCR reactor bypass, the catalyst will be exposed to flue gas at all operating loads. However, the injection of vaporized ammonia and removal of NOx will be restricted to the boiler loads defined for the catalyst minimum operating temperature. Ammonia can not be injected below this minimum catalyst temperature (which is in the range of 550 – 570 degrees F) because ammonium sulfates will condense in the catalyst pores and prematurely reduce the activity of the catalyst. The use of the economizer bypass, which transports higher temperature flue gas upstream of the economizer and mixes it with flue gas entering the SCR reactor, allows the SCR process to remove NOx at lower boiler loads. Thus, the minimum load for a SCR system removing NOx will be lower with an economizer bypass than a SCR system without an economizer bypass.

The economizer bypass design avoids the need for designing a bypass around the SCR in low load conditions and any resulting air permit issues.